

# Christian Missionaries and Education in Former Colonies: An Early Example of the Economics of School Choice?\*

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June 12, 2006

## Abstract

We use the historical experience of former colonies to shed light on current debates about the effects of school competition on student outcomes. Using cross-country data for about 70 countries and regional data for about 180 African provinces, we show that competition between Protestant and Catholic missionaries increased schooling levels in former colonies. Both our qualitative and quantitative evidence implies that the number of Protestant missionaries increased schooling levels in the past as well as in the present in countries with a Catholic state, and that the impact of Protestant and Catholic missionaries on educational outcomes was similar when missionaries of both denominations faced the same legal and institutional treatment. These results contrast with traditional explanations emphasizing the role of missionaries' identity. We link our results to differences in the way colonial powers and governments regulated religious and educational markets: in Protestant colonies, Catholic and Protestant missionaries were allowed to enter and work under similar conditions; while in Catholic colonies, there were implicit or explicit policies favoring the Catholic Church. We interpret these results in the context of an economic rationale in which different institutional features created differences in competitive pressures faced by Catholic and Protestant missionaries.

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\*Corresponding author's email address: fgallego@mit.edu. We would like to thank Daron Acemoglu, David Autor, Dora Costa, and seminar participants at the Harvard University and the Catholic University of Chile for useful comments and suggestions; Norman Loayza and Koichi Kume for providing us the African data sets used in this paper; and Pamela Siska for editing help. Gallego thanks the MIT World Economy Laboratory for financial support. This work has been supported by funding from the Spiritual Capital Research Program, sponsored by the Metanexus Institute on Religion and Science, with the generous support of the John Templeton Foundation and by a *Louisville Institute General Grant*, Lilly Endowment. This paper corresponds to the third's essay of Gallego's PhD dissertation at MIT. The usual disclaimer applies.

## 1 INTRODUCTION

Educational attainment varies widely across countries. Average years of schooling are two years higher in the former British colonies than in non-British colonies. Within Africa, the median region in a Catholic state (defined according to Barro and McCleary, 2004) currently has a literacy rate of about 33% and an educational level of about 1.3 years of schooling. In contrast, the median region in a non-Catholic state has significantly better educational outcomes: a literacy rate of about 48% and about 3.3 years of schooling. These differences in schooling levels predate the present. In 1900, while non-Catholic countries in Africa had an average primary enrollment of 4.6%, Catholic countries had an average primary enrollment rate of 0.9%.

This paper analyzes how national identity, religion, and institutions explain educational outcomes in the former colonies by seeing how differences in market structure affected the provision of education by Christian missionaries in former colonies. Christian missionaries were central agents in the development of the educational systems in former colonies. In most former colonies, the first schools were founded by missionaries (as in British colonies) or were managed by priests as agents of the colonial power (as in most Belgian, Portuguese, and Spanish colonies). Interestingly, different colonial powers had very different regulations affecting missionaries. While in British and German colonies there was a relatively neutral policy allowing both Catholic and Protestant missionaries to operate under similar conditions, in Spanish, Belgian, and Portuguese colonies there were implicit or explicit policies favoring the Catholic Church. The policies ranged from directly granting an educational monopoly to Catholic groups (including harsh barriers of entry to non-Catholic groups) on the one hand, to providing subsidies only to Catholic schools on the other (See Woodberry, 2002, 2004 and Gill, 1998 for detailed descriptions).

Economic theory predicts that these differences in the institutional environment should affect missionaries' productivity. Parents who choose schools consider differences in school quality, missionaries want to maximize the number of children that attend their schools, and production of school quality is costly for missionaries. Thus, while the productivity of Protestant and Catholic missionaries should be similar in colonies where both groups have to compete for students, Protestant missionaries should be especially productive in areas where Catholic missionaries are protected.

This paper uses data on educational outcomes combined with detailed information on the activities of Protestant and Catholic missionaries to examine their productivity in both Catholic and non-Catholic countries. Woodberry (2002, 2004) document that

Protestant missionaries were much more active in schooling than Catholic missionaries when country regulations benefited the Catholic Church. Anecdotal evidence (Bassey, 1999; Kalinga, 1985; Fairweather-Tall, 2002; Kitaev, 1999; and, Woodberry and Shah, 2004) suggests that both Catholic and Protestant missionaries competed by followers by expanding and improving their educational institutions in former British colonies, where both groups received the same treatment. This paper examines missionary activity in both Catholic and non-Catholic countries.

Studies of the relative importance of national identity, religion, and institutions have a long tradition in economic history. Weber (1958) argued that Protestant (in particular Calvinist) beliefs were related to the onset of capitalism and the subsequent development of areas with bigger Protestant populations. In contrast, by emphasizing the importance of competition as opposed to religious and national identity, our results are closely related to the literature that emphasizes the effects of competition and institutions versus national identity or religion on long-term development (e.g., Acemoglu et al., 2001, 2002; Landes, 1998; La Porta et al., 1998, 1999; North, 1990; North et al., 2000).<sup>1</sup> This paper draws on the insights of two literatures. One line of research studies the effect of historic factors on the development of institutions and cross-country differences in educational outcomes (e.g., Engerman et al., 1997, Gallego, 2006; Lindert, 1999), concluding that political institutions established in the past have long-lasting effects on educational outcomes. The second line of research examines how the incentives faced by providers of education affect the provision of education at the micro level (e.g., Hoxby, 2003).

This paper is organized as follows. Section 2 presents a review of the non-economic literature and some historical background. Section 3 presents an economic interpretation that produces testable empirical implications: Catholic and Protestant missionaries should be similarly productive in areas with non-Catholic states and Protestant missionaries should be more productive in Catholic states. Section 4 describes the empirical strategy to contrast the theoretical predictions against the data. Sections 5 and 6 present the results of testing the empirical predictions of the model using a cross-country sample of former colonies and a sample of African regions, respectively. Finally, Section 7 briefly concludes.

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<sup>1</sup>However, it is worth noting that, when discussing educational differences, Landes (1998) stresses a *Weberian* argument by stating that Protestants were more interested in instruction and literacy than Catholics because “good Protestants were expected to read the holy scriptures by themselves. (By way of contrast, Catholics were catechized but did not have to read, and they were explicitly discouraged from reading the Bible)” (Landes, 1998, pp. 178).

## 2 NON-ECONOMIC LITERATURE AND HISTORICAL BACKGROUND

The link between education and religious activity is very old. There is almost no civilization with a developed religion in which instruction was not related or directly provided by the main religious institutions (e.g., consider the cases of Egypt, the Ottoman Empire, and some early Chinese and Indian dynasties). The same is true for most Christian denominations. In the times of the Roman Empire, the Church started to have significant responsibilities in providing education. However, it was not until the Reformation and Counter-Reformation that the Catholic and Protestant Churches began to develop a mass-education approach. Since then Catholic orders and Protestant denominations have developed a strong involvement in the provision of education.<sup>2</sup> The motivation for providing education has ranged from altruistic objectives related to improving the quality of life of children to instrumental objectives related to gaining more followers.

Before colonization, religious groups had accumulated an abundance of know-how and experience in instruction. Thus, when colonization started, the colonial powers allowed missionaries to establish schools. The degree of missionaries' responsibility in running schools varied across colonial powers. In the 19th and 20th centuries, the British and Dutch treated Protestant and Catholic missionaries similarly. Although the British had originally tried to block missionaries from many of their territories, political pressure by evangelical missionary supporters forced them to allow religious liberty after 1813 and provide grants for education that all religious groups could apply for. Unlike British and Dutch colonies, Spanish, Portuguese, and Belgian colonies had a more explicit bias towards the Catholic Church's involvement in education. This bias took the form of a number of regulations favoring the Church and limiting the influence and actions of Protestant missionaries in general and, in particular, in education.

Various reasons motivated missionaries to provide education. Missionaries came to the colonies with a high degree of experience in working in schools in their homelands. At the same time, there were very low costs of entry in education (especially in comparison with other activities such as health care). Some historians stress that education was *the* Western feature that was especially notorious and new for native people, in comparison to other elements such as health care and even the idea of the existence of one God (Bassegy, 1999 and Berman, 1974). Moreover, schooling was a particularly useful way of converting people—a missionary working in Nigeria put it this way: “*We knew the best*

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<sup>2</sup>For instance, among Catholic groups, the Jesuits and a number of Catholic orders started actively working in educational institutions during the Counter-Reformation. Among Protestant groups, the Lutheran Church in Germany and the Scottish Presbyterians developed a mass-education system during the Reformation.

*way to make conversions in pagan countries was to open schools. Practically all pagan boys asked to be baptized. So, when the district (...) was opened (in 1916) we started schools even before there was any church or mission house.”* (Quoted in Bassey, 1999).

Sociologists have noted the relationship between religious variables and education. The main conclusion of the sociological studies is that former British colonies tend to have more schooling. This pattern has been explained by the claim that Protestants put more emphases on formal instruction (Landes, 1998 Meyer, et al., 1992; Ramirez and Boli, 1987).<sup>3</sup> More recently, Woodberry (2002, 2004) show that when controlling for Protestant missionary activity, colonizer identity is irrelevant for predicting education during the colonial period. Woodberry collected data on Protestant missionary activity in former colonies and presents an analysis linking missionary activity and schooling. His main empirical result is that the often-reported positive effect on schooling of being a former British colony disappears when controlling for missionary activity. Conceptually, he argues that Protestant missionaries had a significant effect on schooling for at least two reasons. First, using a Weberian argument similar to Landes (1998), Protestant missionaries were more interested in instruction because “[they] wanted people to read the Scriptures in their own language (p.27)”. In contrast, Woodberry (2002, 2004) argues that Catholic missionaries, in those times, did not put emphasis on whether people were able to read the Bible. Thus, Protestant missionaries were much more interested in having literate believers and, therefore, they initiated mass education. Second, Protestant missionaries acted more independently of the colonial government and, therefore, were able to implement the educational practices they wanted, even if the colonial officials were not interested in (or even were opposed to) providing good education.<sup>4</sup> From a more institutional perspective, as previously discussed, British colonies had a more open approach to Protestant missionaries and, therefore, they had more missionary activity. Thus, Protestant missionaries’s keener interest in providing education and their great ability to do so, combined with institutional features favoring more entry of Protestant missionaries in British colonies would explain the difference in educational outcomes.

Analyses based on the role of missionaries in British colonies in Africa, however, cast doubt on the idea that Catholic missionaries were not as interested in providing good education as Protestant missionaries were. Bassey (1999) describes Catholic missionaries

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<sup>3</sup>Some recent economics papers also find support for the idea that religious affiliation and economic and social outcomes (e.g., Gruber, 2005).

<sup>4</sup>This claim is supported by the historical record for Latin America, where some Catholic clergymen were interested in providing education but did not pursue this aim (or even were expelled from the country as the Jesuits in Paraguay) because opposition from colonial officials and settlers (Deeds, 2004).

competing with Protestant groups and even seeming to be the more innovative group in schools. Bassey's book provides numerous examples of how different missionaries innovated in order to get more students. For instance, he documents that "Catholics taught the English language in their schools from the early grades while the Church Missionary Society (CMS, a Protestant group) frowned upon the teaching of English in their schools. The teaching of English was of particular attention to students and parents alike... Perceiving the threat posed by the Roman Catholics curriculum to the CMS missionary field,... the CMS started teaching English in their schools..." (pp.72-73). Something similar happened regarding the establishment of high schools by Catholics in Onitsha in 1901.

Fairweather-Tall (2002) presents a similar account for the case of Malawi. In the early 1920s, there was discussion between colonial officials and Protestant ministers about whether to establish or not secondary schools. In the mean time, the newly arrived French White Fathers established "illegal" secondary schools. This act immediately created incentives for Protestant groups to open secondary schools when parents started sending their children to the Catholic schools. These examples show that in countries where Catholic missionaries were forced to compete with other denominations, they were innovative in gaining students. Similar descriptions are presented by Kitaev (1999) for some regions of Kenya and Uganda, Kalinga (1985) for Malawi, Ilife (1979) for Tanzania, and Lomawaima (1994) for competition among missionaries for educating the Chilocco in North America.

The historical record provides interesting evidence suggesting that consumers (i.e., parents) cared about quality of education. Bassey (1999) and Berman (1974) present anecdotal evidence supporting the view that consumers did consider the quality of missionary schools when deciding where to send their children. In addition, Bassey (1999) presents some detailed examples of how local chiefs in Nigeria decided which missionary group had the right to operate schools based on the quality of the offers they received. This evidence supports the notion that consumers considered the quality of education when choosing among different education providers.

Other papers suggest that missionaries made "rational" decisions in the sense that market conditions affected their behaviors.<sup>5</sup> For instance, Catholic missionaries offered very different styles of education in Catholic vs. non-Catholic colonies. In Catholic states, Catholic missionaries were not as innovative and active as in non-Catholic states,

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<sup>5</sup>In addition, research on the economics of religion and on the effects of religious market structure on churches' decisions shows that these institutions do strongly react to competitive incentives in a variety of ways (e.g., Iannaccone, 1998).

where they implemented more advanced policies such as secondary education and the teaching of English. But, in areas where Catholic missionaries faced direct competition from other missionaries and had to compete for students, Catholic missionaries were very innovative and pushed for the very same aspects that were absent in their work in Catholic countries.<sup>6</sup>

Overall, the anecdotal evidence discussed in this section suggests that (i) missionaries were important agents in the development of educational systems in former colonies, (ii) regulations affecting missionary work varied in Catholic and non-Catholic colonies, (iii) Protestant missionaries seem to have been more productive than their Catholic counterparts in countries with protections in favor of Catholic missionaries, and (iv) Catholic missionaries were at least as active and innovative as their Protestant counterparts regarding education in places where they did not have state protection and support. The next section develops an economic interpretation of the last two results.

### 3 AN ECONOMIC INTERPRETATION

In this section, we present a simple economic interpretation of the main stylized facts derived in the previous section. The key element in this interpretation is that different missionaries operated under dissimilar institutional/market structures in different areas. British colonies had a highly competitive environment in which missionaries from different denominations had to compete for students. Dutch and German colonies are closer to British colonies in terms that they did not establish protections in favor of the Catholic Church. In contrast, Belgian, Portuguese, and Spanish former colonies (Catholic states hereafter) had a clear bias towards Catholic missionaries, which had a sort of monopolistic position there. Classifying the French among these two groups is not clear-cut. Over the initial period of colonization France favored the Catholic Church, however, in the 20th century the French colonies followed a “neutral” treatment of missionaries in that they restricted both Protestants and Catholics. Thus, Protestant missionaries had to be particularly efficient to overcome the Catholic advantages. But in British, Dutch, and German colonies (non-Catholic states hereafter), the religious affiliation of missionaries was not relevant because they operated under competitive rules and, therefore, if missionaries were inefficient, they would lose students (and potential followers).

Formally, assume that there are two groups competing for a certain number of students. Parents value quality and are in the same location. Each group can decide how

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<sup>6</sup>For instance, in 1901 the Mill-Hill Fathers offered English, Math, Geography, and even Music in their mission schools in British Africa (Beck, 1966).

much education to provide given its resources. Assume that missionaries can use their resources in objectives other than producing instruction (for instance, evangelizing or just consuming resources that are valuable for the missionaries themselves and not for students).

We first present the case in which both missionary groups are treated equally. Assume, moreover, that the market can be modeled as Bertrand competition in quality of schooling. Assume that both missionary groups have the same level of resources and that if both groups offer the same quality, half of the students go to schools of each denomination. In this simple set up, the optimal response is that both groups produce the same level of education given their resources, and that half of the students goes to each school.

The existence of another group of providers with potentially similar characteristics and the threat of losing students create incentives to provide a level of education such as missionaries do not earn rents. Also, in this scenario, missionary identity does not matter because parents choose the school that offers the highest quality. We may expect that each missionary that is operating in the market should provide the same level of quality given her resources. Thus, the main empirical implication is that in Bertrand-like markets identity does not matter and both groups should have the same effect on schooling. We expect this theoretical result to be relevant in countries having non-Catholic states in 1900.

The situation in countries having Catholic states is different. There were barriers to entry and subsidies favoring Catholic missionaries. Thus, the implicit logic of Bertrand competition does not apply to these markets. There are many ways of modeling the situation: we present two simple cases motivated by the historical record:

- Protestant missionaries could only establish schools if they were located a certain distance from Catholic missionaries. For instance, Woodberry (2002, 2004) mention that the Portuguese allowed Protestants to enter Angola and Mozambique, but banned Protestant mission stations from being located near Catholic missions (generally about 20 miles). In this case, the only way that Protestant missionaries could have positive enrollment is by offering a school quality level that was strictly *above* the quality offered by Catholic missionaries.<sup>7</sup>

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<sup>7</sup>Formally, assume a Hotelling (1929)-like model. Parents  $i$  maximize a utility function of the form  $U_{ij} = q_j - t(l_j - l_i)^2$ , where  $q_j$  is quality in school  $j$ ,  $l_j$  is the location of school  $j$ ,  $l_i$  is the location of parents  $i$ , and  $t$  is a transportation cost. Assume the location of all parents is the same:  $l_i = 0$ . The Catholic school is also located at  $l_C = 0$  (where  $C$  refers to the Catholic school). Assume the Protestant school can only be located at  $l_P = d > 0$  ( $P$  refers to the Protestant school). In this case, if  $t > 0$  and

- Catholic missionaries received a certain share of the student population irrespective of the level of education they provided. This could be an equilibrium result of the limited supply of Protestant missionaries –and, therefore, Protestant schools—in Catholic colonies. For instance, Woodberry (2002, 2004) document that some Catholic colonial powers, as Italy, banned the entry of missionaries to some of their colonies. Other regulations limited the entry in a more indirect way. For instance, most Catholic colonizers required all education to be in the colonial language. As most Protestant missionaries were primarily English speakers, they needed to spend some years to gain the required linguistic fluency before going to the colonies.

Therefore, in many cases Catholic missionaries had a captive population given by the absence of competitors. This situation allowed them to keep students without offering a high level of school quality. Protestant missionaries did not receive these protections, so they had to be especially productive if they were going to have students. Assuming that missionaries have to provide the same education for all students that attend their schools and assuming the typical properties of the benefits and costs functions (concave benefit functions and convex cost functions), we get the result that Protestant missionaries should have offered, in most cases, a quality level above that offered by Catholic missionaries.

Therefore, these two simple cases generate the same prediction: Protestant missionaries should have been more productive in areas in which Catholic missionaries received preferential treatment. We expect this theoretical prediction to be relevant in Catholic states.

Our interpretation is that these historical institutional differences persist to the present because educational outcomes and institutions present a high degree of inertia. There are several reasons why persistence is plausible in the case of education (Gallego, 2006). Firstly, setting up institutions is costly and there are irreversible complementary investments. Secondly, intergenerational inertia creates persistence in educational levels among members of several cohorts. Thirdly, the accumulation of human capital is endogenous. Increases in the supply of education increase the profitability of investing in human capital-related technologies, which, in turn, encourages schooling (Acemoglu, 2002). Finally, peer effects can explain low levels of education over several generations

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the Protestant schools exists (i.e. has a positive enrollment level),  $q_P > q_C$ . In other words, Protestant missionaries have to offer a school quality above that offered by Catholic missionaries in order to have students.

even though there are policies aiming to expand schooling. Consistent with this hypothesis, Gallego (2006) presents evidence that cross-country differences in schooling are highly persistent. Therefore, we expect the differences in the institutional setting to have an impact on educational outcomes both in the past and in the present.

In summary, the theoretical rationale presented in this section predicts that, while the education productivity of Catholic and Protestant missionaries should have been the same in non-Catholic states, Protestant missionaries should have been more productive in Catholic states. Since education presents a high degree of inertia, we expect that these historical differences also affect current educational outcomes. The next section presents the empirical framework we develop to test these predictions.

#### 4 EMPIRICAL FRAMEWORK

Using the theoretical and historical background described above, we study whether the productivity of missionary educational activity depends on government regulation of religion by comparing countries having Catholic states with other former colonies. The main estimating equation is:

$$S_i = \beta_P PM_i^{1900} + \beta_C CM_i^{1900} + \gamma_P PM_i^{1900} \times CS_i^{1900} + \gamma_C CM_i^{1900} \times CS_i^{1900} + \delta CS_i^{1900} + \mathbf{X}_i' \beta + e_i, \quad (1)$$

where  $S$  is schooling in area  $i$ ,  $PM$  is a proxy for Protestant missionary activity in area  $i$ ,  $CM$  is Catholic missionary activity,  $CS$  is a dummy taking a value of 1 if the area  $i$  has a Catholic state,  $\mathbf{X}$  is a vector of controls in area  $i$ , and  $e$  is an error term.

We interpret  $\beta_P$  and  $\beta_C$  as the education productivity of Protestant and Catholic missionaries in non-Catholic states, and  $\gamma_P$  and  $\gamma_C$  as the productivity differential of each group of missionaries in Catholic states. The empirical counterparts of our two theoretical predictions are:

$$\begin{aligned} \beta_P &= \beta_C, \text{ and} \\ \gamma_P &> \gamma_C. \end{aligned} \quad (2)$$

The first prediction states that Catholic and Protestant missionaries should be equally productive in areas with non-Catholic states. The second prediction states that Protestant missionaries are more productive than Catholic missionaries in Catholic states.<sup>8</sup>

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<sup>8</sup>Strictly speaking, the model also predicts that  $\gamma_C < 0$ . However, this prediction is difficult to test empirically with our available data because Catholic missionaries in areas with a Catholic state may have more resources for education than in non-Catholic areas, which may imply  $\gamma_C > 0$ .

To test these predictions, we need information about (i) the presence of Catholic and Protestant missionaries in different areas, and, (ii) the regulations affecting those missionaries. We use data for around 1900 because missionary activity increases considerably after the foundation of a number of Protestant missionary societies in the first half of the 1800s and the London Conference (Johnson, 1997). At the same time, Catholic missions were revived after the 1750-1815 period when missionary interest diminished, the empires disintegrated, and the Society of Jesus (i.e. the Jesuits) was suppressed. Subsequently, new missionary orders were founded and native clergy and bishops were ordained to serve new churches in Asia, Africa, and throughout the world. Consistent with this, we use information on the existence of Catholic states during the same period.

We use data on Protestant missionaries from Woodberry (2002, 2004). We use two indicators of Protestant activity: (i) the number of Protestant missionaries per capita working in a particular area in the early 1900s and (ii) a dummy that takes a value of one if Protestant missionaries worked in a particular region in the early 1900s. Woodberry (2002, 2004) collected data using information on the location of mission stations and linked that information with modern borders of countries. In addition, for the cross-region analysis developed in this paper, we linked this information with modern borders of regions within a country for 17 African countries. The definition of missionary in Woodberry (2002, 2004) corresponds to “one who is doing missionary work away from his own national home and among the people of another race”.

Data on Catholic missionaries come from linking two sources: (i) the *Catholic Encyclopedia* (1907), which presents information on the number of religious personnel per diocese in the early 1900s; and (ii) “Catholic Hierarchy” (<http://www.catholic-hierarchy.org>), which collects information about current and past Catholic dioceses, allowing us to match historical dioceses (in the early 1900s) with current regions and countries. The basic measure of Catholic missionaries is the total number of priests in a particular diocese—there is also information for other related variables, such as the number of schools and the number of pupils attending Catholic schools for a sub-sample of countries. This variable incorporates both native and foreign priests that are ministering to the total population of a country (diocese). Therefore, when constructing the ratio of Catholic missionaries priests per capita, we use the total population as the denominator. This method contrasts with the variable measuring Protestant missionaries in Woodberry (2002, 2004). His variable considers only foreign priests ministering to non-European population for all countries (except Latin American countries where he considers missionaries ministering to the total population). So, to make both per-capita

missionary ratios comparable, in the case of Protestant missionaries, we use total population in the denominator for Latin American countries and non-European population for the other countries.

We complement the information from the *Catholic Encyclopedia* with a number of country-specific sources to construct proxies for the presence of Catholic missionaries across African regions. Appendix Table 1 presents a description of the sources to construct the proxies for Catholic missionary activity in each country.

In order to identify which countries had regulations favoring Catholic missionaries, we use two different indicators. In the cross-country analysis, we use the state religion classification from Barro and McCleary (2004), who present the countries having an official religion in 1900 (by Catholic states we mean countries with Catholic as the official state religion). In particular, they classify a country as having a state religion when the government explicitly favors a particular denomination. We will use the variable for 1900 as a proxy for the existence of a number of regulations favoring the Catholic Church. This variable is important because we have data for a period when a number of former colonies were already independent (i.e., most former Spanish colonies located in Latin America). Most Spanish colonies kept the colonial tendency towards giving a preferential treatment to the Catholic Church, but four of them did not have a Catholic state in 1900 (Ecuador, Mexico, Nicaragua, and Uruguay). These countries are not particularly different from the other former Spanish colonies in a number of dimensions (such as per-capita income, democracy, primary enrollment, and income distribution in 1900).

In the cross-region regressions for Africa, we classify regions having regulations favoring Catholic missionaries as those located in areas controlled by the Belgian and the Portuguese. These two colonial powers had explicit regulations favoring the Catholic Church. In contrast, French colonies *starting from the early 20th century* did not have regulations favoring Catholic missionaries.

In the next two sections we estimate equation (1) using two different samples: a cross-country sample and an African cross-region sample.

## 5 CROSS-COUNTRY EVIDENCE

In this section we apply the empirical framework described in the previous section in a cross-country context. We study whether the productivity of missionaries changes depending on the market structure they face. We estimate regressions for schooling levels in the present and the past, given the evidence that schooling levels present a high degree of inertia (Gallego, 2006). Since we study the effect of missionary activity in the

past on current levels of schooling, our estimates are also informative as to the historical roots of educational outcomes.

Our measures of schooling are average years of schooling of the adult population in 1985-1995 and primary enrollment rates in 1900. Data on current levels of schooling come from Barro and Lee (2001) and Cohen and Soto (2001). Data on primary enrollment in 1900 come from Benavot and Riddle (1988), who present enrollment rates in the 1870-1940 period (Gallego, 2006 presents a detailed description of this dataset). In all specifications we control for general conditions faced by colonizers—measured using settler mortality from Acemoglu et al. (2001 and 2002). This is an important control to distinguishing the theory we are proposing in this paper from alternative theories emphasizing the effect of the conditions faced by the colonizers on educational outcomes (Gallego, 2006). Since countries having a Catholic state in 1900 became independent before other countries, we also control for years since independence in some specifications.

Before estimating equation (1), we discuss the main characteristics of our missionary activity data. Table 1 presents the basic descriptive statistics for our measures of missionary activity. Missionaries were present in most countries in our sample. The average number of Protestant and Catholic missionaries per 1,000 people is roughly similar in the complete sample. When we split the sample between Catholic and non-Catholic states, differences are substantial. While in Catholic states Catholic missionaries outnumbered Protestant missionaries, the median number of Protestant and Catholic missionaries is roughly the same in non-Catholic states. This result is not unexpected because Protestant missionaries were not allowed to enter some Catholic states. The results in Table 2 confirm the evidence in Table 1. Simple and partial correlations between Catholic and Protestant missionaries are positive and statistically significant only for non-Catholic states. Among Catholic states, correlations are smaller and not statistically significant. These results present indirect evidence that competition among missionaries was more intense in countries with a non-Catholic state.

Figure 1 studies the relationship between missionary activity and schools. This figure presents the relationship between Catholic schools per-capita and Catholic missionaries per-capita in a sub-sample of 44 countries for which we have information (we do not have information about Protestant schools). The data suggest that Catholic missionary activity was associated with the founding of schools. The estimates imply that a one-percent increase in the number of missionaries in a country was associated with a one-percent increase in the number of schools.

Our theoretical discussion and the above-mentioned anecdotal evidence suggest that

there are heterogeneous effects of missionaries in different areas, depending on the market structure. Table 3 presents estimates of equation (1). This evidence supports our theoretical discussion. First, using educational data for 1900 and 1985-1995, Protestant and Catholic missionary activity has the same effects in non-Catholic countries (i.e.,  $\beta_C = \beta_P$ ). Second, Protestant missionaries are significantly more productive than Catholic missionaries in non-Catholic countries (i.e.,  $\gamma_C < \gamma_P$ ). These results are robust to including years since independence and interactions of missionaries with years of independence, as shown in columns (2) and (4). Interestingly, we find evidence in favor of our theory both in 1900 and the 1990s, suggesting that institutions established in the past have long-lasting effects on educational outcomes.

The effects reported in Table 3 are economically relevant. Using the estimates from column (2), our results imply that increasing the number of Protestant missionaries by one standard deviation (roughly 0.25 missionaries per 1,000 people) in Catholic states produces roughly 7 additional percentage points of primary enrollment in 1930 in comparison to a proportional increase in the number of Catholic missionaries. This effect is significant and is equivalent to about a 50% of the average primary enrollment rate in 1930 in our sample, which is 14.11%. Using estimates in column (4), a one standard-deviation increase in Protestant missionaries in 1990 produces about one additional year of schooling in Catholic versus non-Catholic states (equivalent to about 25% of the average years of schooling in our sample).

Overall, these results strongly support our two main theoretical predictions. Now, we extend our initial analysis and address potential concerns about our results. First, we present results splitting the sample between

Second, we present a falsification exercise of our previous results. We present estimates of equation (1) using primary enrollment rate in 1870 as our left-hand side variable for a sub-sample of countries where Protestant missionaries arrived *after* 1870 (Table 4). A significant interaction effect in this sample implies that omitted variables and/or other mechanisms should explain our results because Protestant missionaries *were not working* in those countries in 1870.<sup>9</sup> The results suggest that the interaction of Protestant mis-

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<sup>9</sup>We have also run other robustness exercises that we do not report here in interest of saving space. First, we run regressions including a measure of democracy as our left-hand side variable. Our theory and the historical background do not provide clear reasons to expect the interaction effect between Protestant missionaries and Catholic to be significant. Second, we control for potential differences in the human capital of missionaries going to different states. Since missionaries from different colonial powers and denominations had different levels of human capital, these differences may explain the significance of our interaction effects. Third, we have put in higher order terms in Catholic and Protestant missionaries per capita to test whether our main regressions are picking up diminishing marginal returns to missionaries. Fourth, we have run regressions excluding outliers. Finally, we have run regressions defining a non-

sionaries and Catholic states is negative in 1870, which is the opposite of what we find in Table 3. More importantly, the interaction effect is *positive* and significant when we use primary enrollment in 1930 as the left-hand side variable, confirming our previous results. Putting it differently, the positive differential effect of Protestant missionaries in Catholic states is not present in the data *before* Protestant missionaries arrived to these countries and is *positive* and statistically significant after they arrived. Therefore, these results confirm our previous results and lend additional support to the theoretical mechanism we propose to explain these results.

Overall, the results in this section document the argument that while Protestant and Catholic missionaries were similarly productive in countries with a competitive educational market, Protestant missionaries were significantly more productive than Catholic missionaries in markets in which the former were protected by regulations and government support. The next section analyzes the same issue using a regional data set include about 180 regions of 17 African countries.

## 6 AFRICAN CROSS-REGION EVIDENCE

In this section, we test the theoretical predictions presented in (2) using cross-region data for 17 African countries. This cross-region sample presents some important advantages. First, the allocation of different regions to different colonial powers follows a more or less arbitrary process. In particular, the actual shape of many African countries was determined in a rather arbitrary form after a number of struggles among several colonial powers in the late 1800s (notice the number of straight lines in the map of Africa). For instance, between May 1884 and February 1885, Germany announced its claims to territory in South West Africa (now South West Africa/Namibia), Togoland, Cameroon, and part of the East African coast opposite Zanzibar. Even smaller nations such as Belgium, Italy, Portugal and Spain also became active in bidding for African territory. The problem was that France and England already had a number of claims in the continent. The settlements resulting from these struggles completed the European partition of Africa. The partition started in 1884 with the West African Conference. The conference recognized the Congo Free State (the modern Democratic Republic of Congo) ruled by Belgium that subsequently took over the Katanga region in 1908. Germany consolidated its possessions of Togo and Cameroon, while England and France pushed northward and eastward from their bases: England concentrated on the Niger

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Catholic state as a British colony (following Woodberry, 2002, 2004). The rationale of this exercise is that British colonies were those that tended to give more freedom to both groups of missionaries. In all these cases, our main results are robust to these checks. Results available upon request.

region, while France aimed at joining its possessions at Lake Chad. The boundaries determined by conquest and agreement between the conquerors gave France French West Africa and French Equatorial Africa, while Britain carved out its Nigerian colony (Encyclopædia Britannica, 2004). Therefore, the allocation of areas to different colonial powers is arguably "more exogenous" than the allocation in a cross-country setting.

Second, educational sectors in the countries in this sample started to be developed around 1900, with Christian missionaries playing a central role. Thus, this sample provides a "cleaner" test of the effects of institutional features affecting missionaries on the development of educational systems. Third, most central African regions/countries started with relatively similar levels of development circa 1900 (as documented in Madison, 2003) and many ethnic groups ended up divided between countries with different colonizers. Thus, we can use the entry of missionaries and the arbitrary definition of boundaries between colonial powers as a source of exogenous variation in the number of missionaries and colonial policies regarding them.

Our sample includes about 180 regions/provinces that belong to 17 African countries located in two African areas:

- Central-West Africa: Benin, Burkina Faso, Cameroon, Central African Republic, Cote d'Ivoire, Gambia, Ghana, Guinea, Nigeria, and Togo.
- Central and South-East Africa: Angola, Burundi, Kenya, Malawi, Rwanda, Tanzania, and Zambia.

We use two measures of educational outcomes in the present: average years of schooling of the adult population and literacy rates at the provincial level. Table Appendix 1 presents the sources of data for each country. The choice of countries was basically related to the availability of data about educational outcomes.

Table 5 presents descriptive statistics for educational outcomes and missionary activity. As expected, educational outcomes are low. Average attainment is below three years of schooling and literacy rates are below 50% in average. At the same time, the variability of both dimensions is high: average schooling varies from roughly no schooling to an average schooling of above seven years.

Table 5 also presents descriptive statistics of the presence of Catholic and Protestant missionaries at the province level in the early 1900s. Missionaries were working in about 60% of the provinces. Provinces within a Catholic state tended to have fewer areas with missionary activity than areas outside Catholic states. The number of missionaries per 1000 people was roughly the same in regions with and without a Catholic state, but

the composition of the missionaries changed significantly. While in Catholic states there were about 1.2 Catholic missionaries per Protestant missionary, in the other areas there were about two Protestant missionaries per Catholic missionary. The data also suggest that Protestant missionaries only entered some areas in Catholic states. Interestingly, these results confirm the basic pattern we observe in the cross-country data, as presented in Table 1.

Table 6 complements this evidence. We present simple and partial correlations of our measures of missionary activity in different areas. The results in Panel A of Table 6 using the dummies for the presence of missionaries give a pattern similar to that observed in the cross-country data (Table 3). While in Catholic states the correlation of Protestant and Catholic missionary activity is negative or insignificant, in “neutral” states the correlation is positive and significant. The results using a partial correlation index present a similar pattern.<sup>10</sup> The results using our measures of missionaries per person in Panel B of Table 6 suggest a similar pattern, but the correlations are not precisely estimated. Overall, the results in this table suggest that the degree of competition between Protestant and Catholic missionaries was higher in non-Catholic states.

Next, we estimate equation (1) using regional data. Table 7 presents the results. Panel A presents results without including controls at the region level. The results show a pattern similar to our cross-country evidence. The two basic theoretical predictions are supported by the data: (i) Protestant and Catholic missionaries have a similar effect on educational outcomes in areas where they have to compete among them and (ii) Protestant missionaries are significantly more productive in areas with a Catholic state. In Panel B, we introduce controls for region characteristics and the results are roughly similar. The second implication is not supported only in two of the eight alternative specifications presented in Table 7 (p-values of about 0.15).<sup>11</sup> Therefore, our results are robust to using two alternative measures of schooling (years of schooling and literacy) and two alternative proxies for missionary activity (a dummy for presence of any missionary activity and a measure of missionaries per person).<sup>12 13</sup>

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<sup>10</sup>When computing partial correlations, we control for population density, distance to the sea, dummies for the presence of rivers, lakes, and access to the sea, a dummy that takes a value of one if capital city of the country is located in the region, and broad-region dummies (i.e., if the province is located in Central-West Africa or Central and South-East Africa).

<sup>11</sup>Finally, if we impose the restriction that  $\beta_P = \beta_C$ , the results are similar and more precisely estimated. In all the cases, we reject the null hypothesis that  $\gamma_P > \gamma_C$ . Results available upon request.

<sup>12</sup>Regressions present standard errors clustered at the country level. If we include country fixed effects, all coefficients become statistically insignificant because standard errors increase. This result suggests that most of the variation we are identifying is related to between-country differences, as expected.

<sup>13</sup>In addition, we have run regressions defining a non-Catholic state as a British colony (following Woodberry, 2002, 2004). Our results are robust to this check. Results available upon request.

Overall, the results using a sample of African regions confirm our theoretical predictions and confirm the results using cross-country evidence. Since educational systems in these African regions started to develop in the early 1900s and missionaries played a significant role in the development of these systems, these results are relevant because provide a cleaner test of the effects of institutional regulations in terms of the effect of missionaries on educational outcomes.

## 7 CONCLUDING COMMENTS

We started this paper documenting the big differences in educational attainment existing between Catholic and non-Catholic states in our African cross-region sample and we asked whether these differences were driven by national identity, religious affiliation, or institutional features. Our estimated effects suggest that institutions play an economically relevant role to explain differences in educational attainment. For instance, our estimates for Africa suggest that the same number of Catholic missionaries per 1,000 people would have implied 5 additional percentage points of literacy rates and about 0.5 additional years of schooling had missionaries been as productive as Catholic missionaries in non-Catholic states. Therefore, only differences in productivity of Catholic missionaries in different Catholic and non-Catholic states explain between one-third and one-quarter of the differences in educational outcomes between both groups of African provinces.

We interpret these differences as rational reactions to regulations: while in non-Catholic colonies there was a relatively neutral policy allowing most missionaries to work under equal conditions, in Catholic colonies there were implicit or explicit policies favoring the Catholic Church. This institutional feature created differences in the competitive pressures faced by Catholic and Protestant missionaries in different places. We support our theoretical predictions using three different sources of information. First, we present a number of examples taken from the historical record. Second, we use cross-country data about educational outcomes in 1900 and 1990 for a sample of former colonies. In this context, we present a falsification exercise that suggests that our results are robust to alternative explanations. Third, we use African cross-region data about educational outcomes in the 1990s for a sample of 17 countries.

Our results lend additional evidence to the ongoing debate on the optimal structure of provision of education. A key element in this debate has to do with the interaction of the incentives to providers, and the way consumers respond to the existence of different schools. This paper presents evidence supporting the basic predictions of models

implying a positive effect of inter-school competition on educational outcomes.

More broadly speaking, our results also confirm the role that institutions established in the past play in current educational outcomes. We show that regulations that affected educational systems and actors in the past have long-lasting effects on educational outcomes. Finally, this paper also shows how historical analyses can help shed light (in a similar vein as Karpoff, 2002) on contemporary policy questions.

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**Table 1**  
**Cross-Country Missionary Activity. Descriptive Statistics, c. 1900**

<b>Panel A: Complete Sample</b>		
	Protestant Missionaries per 1,000 people	Catholic Priests Per 1,000 people
Average	0.14 (Hong Kong)	0.11 (Belize-Haiti)
Median	0.04 (Guatemala)	0.06 (Gambia)
Standard Deviation	0.25	0.13
Maximum	0.99 (U.S.)	0.63 (Canada)
Minimum	0.00 (Burundi, Ivory Coast, Mauritania, Niger)	0 (Chad, Mauritania, Niger)
Number of Countries	75	75

  

<b>Panel B: Catholic States</b>		
	Protestant Missionaries per 1,000 people	Catholic Priests Per 1,000 people
Average	0.04 (Costa Rica)	0.23 (El Salvador)
Median	0.04 (Costa Rica)	0.17 (Panama)
Standard Deviation	0.03	0.14
Maximum	0.12 (Panama)	0.47 (Bolivia)
Minimum	0.01 (Colombia)	0.01 (Zaire)
Number of Countries	17	58

  

<b>Panel C: Non-Catholic States</b>		
	Protestant Missionaries per 1,000 people	Catholic Priests Per 1,000 people
Average	0.16 (Hong Kong-Singapore)	0.08 (Congo)
Median	0.03 (Ghana-Malaysia)	0.03 (Senegal-Singapore)
Standard Deviation	0.28	0.11
Maximum	0.99 (U.S.)	0.63 (Canada)
Minimum	0 (Burundi, Ivory Coast, Mauritania, Niger)	0 (Chad, Mauritania, Niger)
Number of Countries	17	58

**Table 2**  
**Protestant and Catholic Missionaries: Cross-Country Correlations c. 1900**

Simple correlation	
All countries	0.3423 (0.004)
Catholic State in 1900	-0.2874 (0.252)
Non-Catholic State in 1900	0.6162 (0.000)
Partial correlation controlling for settler mortality	
All countries	0.1561 (0.197)
Catholic State in 1900	0.1469 (0.601)
Non-Catholic State in 1900	0.4840 (0.000)

Notes: p-values are presented in parentheses.

**Table 3**  
**Missionary Activity and Schooling: Interaction Effects**

	Dependent Variable			
	Primary Enrollment in 1930		Average years of Schooling in 1985-1995	
Protestant missionaries	71.04 (7.94)	87.59 (13.75)	5.21 (1.07)	7.14 (3.50)
Catholic missionaries	34.97 (18.54)	-2.18 (57.12)	5.06 (2.52)	0.91 (7.09)
Log(Settler Mortality)	-3.07 (1.49)	-3.32 (1.61)	-.62 (0.16)	-0.60 (0.17)
Protestant missionaries *Catholic State	211.76 (50.16)	230.43 (49.88)	31.30 (4.38)	32.08 (4.52)
Catholic missionaries *Catholic State	30.75 (33.51)	22.29 (29.24)	0.53 (3.45)	-0.24 (4.11)
Catholic State	-10.50 (7.09)	-17.35 (5.82)	-1.08 (0.72)	-1.29 (1.12)
Protestant Missionaries *Years since Independence	-	-0.16 (0.09)	-	-0.01 (0.02)
Catholic Missionaries * Years since Independence	-	0.20 (0.40)	-	0.03 (0.05)
Years since Independence/100	-	7.18 (4.59)	-	0.23 (0.72)
F-Test (p-value): $\beta_p = \beta_c$	0.1589	0.1502	0.9624	0.5865
F-Test (p-value): Ho: $\gamma_p = \gamma_c$ H1: $\gamma_p > \gamma_c$	0.0002	0.0001	0.0000	0.0000
R <sup>2</sup>	0.7625	0.7753	0.7366	0.7549
Number of Observations	71	71	66	66

Notes: Constant not reported. White-Huber robust standard errors reported in parentheses.

**Table 4**  
**Falsification Exercise III: Interaction Effects *before* the Entry of Protestant Missionaries**

	Dependent Variable	
	Primary Enrollment in 1870	Primary Enrollment in 1930
Protestant missionaries	81.38 (3.17)	70.74 (3.63)
Catholic missionaries	38.06 (4.74)	57.31 (5.07)
Log(Settler Mortality)	-2.12 (1.35)	-3.30 (1.62)
Protestant missionaries *Catholic State	-97.81 (39.50)	262.88 (56.86)
Catholic missionaries *Catholic State	-25.01 (22.92)	-14.68 (36.36)
Catholic State	10.39 (7.68)	-6.45 (8.50)
R <sup>2</sup>	0.833	0.909
Number of Observations	25	25

Notes: Constant not reported. White-Huber robust standard errors reported in parentheses.

**Table 5**  
**African Cross-Region Data: Summary Statistics**

<b>Panel A: Complete Sample</b>						
Variable	N	Mean	Median	S.D.	Min	Max
Dummy: Catholic missionaries	189	.407	0	.493	0	1
Dummy: Protestant missionaries	189	.423	0	.495	0	1
Dummy: Missionaries	189	.577	1	.495	0	1
Cath. missionaries per 1000 people	189	.018	0	.038	0	.299
Prot. missionaries per 1000 people	189	.033	0	.077	0	.460
Missionaries per 1000 people	189	.051	.022	.087	0	.460
Literacy rate	189	.426	.455	.254	.024	.956
Average years of schooling	179	2.886	2.963	2.060	.006	7.140

**Panel B: Regions in areas with and without protection of the Catholic Church**

Variable	Catholic State	“Neutral” State
	Mean	
Dummy: Catholic missionaries	.455	.401
Dummy: Protestant missionaries	.227	.449
Dummy: Missionaries	.500	.587
Cath. missionaries per 1000 people	.028	.016
Prot. missionaries per 1000 people	.024	.034
Missionaries per 1000 people	.052	.051

**Table 6**  
**Protestant and Catholic Missionaries: African Cross-Region Correlations c. 1900**

<b>Panel A: Measure of Missionary Activity: Dummy for Presence</b>	
Simple correlation	
All regions	0.34 (0.01)
Catholic State in 1900	0.38 (0.08)
Non-Catholic State in 1900	0.34 (0.00)
Partial correlation controlling for region characteristics	
All regions	0.19 (0.01)
Catholic State in 1900	0.01 (0.98)
Non-Catholic State in 1900	0.22 (0.01)
<b>Panel B: Measure of Missionary Activity: Missionaries per Person</b>	
Simple correlation	
All regions	0.03 (0.67)
Catholic State in 1900	-0.15 (0.53)
Non-Catholic State in 1900	0.07 (0.34)
Partial correlation controlling for region characteristics	
All regions	0.01 (0.89)
Catholic State in 1900	-0.31 (0.26)
Non-Catholic State in 1900	0.05 (0.53)

Notes: Region characteristics are population density, distance to the sea, dummies for the presence of rivers, lakes, and access to the sea, a dummy that takes a value of one if the capital city of the country is located in the region, and broad-region dummies (i.e. if the province is located in Central-West Africa or Central and South-East Africa). P-values are presented in parentheses.

**Table 7**  
**Cross-Region Regressions: Educational Outcomes**  
**Panel A: Without Including Region Controls**

Proxy for Missionaries Dependent Variable	Dummy for Presence		Missionaries per 1000 people	
	Literacy	Schooling	Literacy	Schooling
	(1)	(2)	(3)	(4)
Independent Variable				
Protestant missionaries	.13 (.07)	1.47 (.62)	.77 (.27)	6.16 (2.47)
Catholic missionaries	.11 (.04)	.96 (.33)	1.09 (.43)	6.87 (4.13)
Protestant missionaries *Catholic State	.37 (.21)	1.94 (1.83)	.39 (.50)	4.57 (3.54)
Catholic missionaries *Catholic State	-.00 (.05)	.00 (.69)	-1.23 (.72)	-6.75 (6.31)
Catholic State	-.19 (.10)	-0.92 (.86)	-.12 (.17)	-0.98 (1.20)
Controls	No	No	No	No
Area Effects	Yes	Yes	Yes	Yes
F-Test (p-value): $\beta_p = \beta_c$	0.79	0.51	0.47	0.85
F-Test (p-value): Ho: $\gamma_p = \gamma_c$ H1: $\gamma_p > \gamma_c$	0.05	0.16	0.00	0.02
R <sup>2</sup>	0.60	0.43	0.48	0.25
Number of Observations	189	179	189	179

**Panel B: Including Region Controls**

Proxy for Missionaries Dependent Variable	Dummy for Presence		Missionaries per 1000 people	
	Literacy	Schooling	Literacy	Schooling
	(1)	(2)	(3)	(4)
Independent Variable				
Protestant missionaries	.11 (.07)	1.24 (.54)	.72 (.20)	5.64 (1.93)
Catholic missionaries	.06 (.04)	.48 (.32)	.42 (.34)	.80 (3.44)
Protestant missionaries *Catholic State	.41 (.22)	2.24 (1.81)	.49 (.34)	5.58 (2.87)
Catholic missionaries *Catholic State	-.02 (.05)	-.01 (.53)	-.84 (.53)	-2.86 (4.20)
Catholic State	-.21 (.08)	-1.22 (.69)	-.15 (.13)	-1.25 (.92)
Controls	Yes	Yes	Yes	Yes
Area Effects	Yes	Yes	Yes	Yes
F-Test (p-value): $\beta_p = \beta_c$	0.56	0.31	0.48	0.56
F-Test (p-value): Ho: $\gamma_p = \gamma_c$ H1: $\gamma_p > \gamma_c$	0.04	0.13	0.01	0.04
R <sup>2</sup>	0.66	0.50	0.57	0.41
Number of Observations	189	179	189	179

Notes: Constant not reported. Controls are population density, distance to the sea, dummies for the presence of rivers, lakes, and access to the sea, a dummy that takes a value of one if the capital city of the country is located in the region. Area effects are broad-region dummies (i.e. if the province is located in Central-West Africa or Central and South-East Africa). Clustered standard errors at the country level reported in parentheses.

**Table Appendix 1**  
**African Cross-Region Data Sources**

Human capital	
Country	Survey
Angola	Inquerito Prioritario Sobre as Condicoes de Vida dos Domicilios, 1995
Benin	Enquête Démographique et de Santé, 1996
Burkina-Faso	Enquête prioritaire, 1998
Burundi	Enquête prioritaire 1998 - Etude nationale sur les conditions de vie des populations
CAR	Enquête Démographique et de Santé 1994/95
Cameroon	Enquête Camerounaise auprès des Ménages, 1996
Cote d'Ivoire	Enquête à Indicateurs Multiples, 1995
Gambia	Household Education and Health Survey, 1993
Ghana	Demographic and Health Survey 1998/99
Guinea	Enquête démographique et de santé en Guinée 1999
Kenya	Demographic and Health Survey 1998
Malawi	Integrated Household Survey 1997
Nigeria	Demographic and Health Survey, 1993
Rwanda	Enquête Démographique et de Santé 1992
Tanzania	Human Resources and Development Survey 1993
Togo	Enquête Démographique et de Santé 1988
Zambia	Demographic and Health Survey 1996
Catholic Missionaries	
Country	Reference
Angola	Catholic Encyclopedia (1907) L. W. Henderson (1979) Angola : five centuries of conflict C. P. Groves (1975) The planting of Christianity in Africa B. de Vault, (1961) A History of Missions.
Benin	Catholic Encyclopedia (1907) Patrick Manning (1982) Slavery, colonialism, and economic growth in Dahomey, 1640-1960.
Burkina-Faso	World Christian Encyclopedia P. Englebert (1996). Burkina Faso : unsteady statehood in West Africa.
Burundi	World Christian Encyclopedia J.P. Chrétien (2003). The great lakes of Africa : two thousand years of history.
CAR	Catholic Encyclopedia (1907) World Christian Encyclopedia B. de Vault, (1961) A History of Missions.
Cameroon	Catholic Encyclopedia (1907)
Cote d'Ivoire	Catholic Encyclopedia (1907) World Christian Encyclopedia B. de Vault, (1961) A History of Missions.
Gambia	Catholic Encyclopedia (1907) World Christian Encyclopedia B. de Vault, (1961) A History of Missions.
Ghana	Catholic Encyclopedia (1907) World Christian Encyclopedia C. P. Groves (1975) The planting of Christianity in Africa W. Ward, (1963) A history of Ghana.
Guinea	World Christian Encyclopedia C. P. Groves (1975) The planting of Christianity in Africa Harold D. Nelson et al. (1975) Area handbook for Guinea.
Kenya	Catholic Encyclopedia (1907)

World Christian Encyclopedia  
C. P. Groves (1975) The planting of Christianity in Africa  
Robert L. Tignor (1976). The colonial transformation of C. Kenya : the Kamba, Kikuyu, and Maasai from 1900 to 1939  
C. Eliot (1976) The East Africa Protectorate

Malawi  
Catholic Encyclopedia (1907)  
World Christian Encyclopedia

Nigeria  
Catholic Encyclopedia (1907)  
World Christian Encyclopedia  
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